

qualities naturally endeared him to many. I count it as one of my great privileges to have had as a friend this man—self-taught and wise. It is good that his name shall live long in the botanical annals of California.—PHILIP A. MUNZ, Bailey, Hortorium, Cornell University, Ithaca, New York.

## AN ABNORMAL PEPPERGRASS

C. L. HITCHCOCK

During the course of a taxonomic study of the *Lepidia* of the Western Hemisphere one specimen has been seen which is so unusual that it is felt a brief description of it will be of interest to others. This plant was collected at Charcas, San Luis Potosi, Mexico, in 1934 (*Alfred F. Whiting 914EB*, United States Herbarium number 1688427). It is a teratological specimen, and so greatly modified that it is difficult to make a determination to species, but it is believed that it is *L. Schaffneri* Thellung. The branches of the plant end in one or more racemes at the base of which there remain numerous pedicels supporting all that is left of the ripened silicles—the placentae and repla. Apparently these fruits produced normal seeds.

The flowers of the upper half of each raceme are progressively more and more modified. A practically normal fruit and a normal flower are to be seen in figure one. Two stamens, four sepals, four petals, and four glands are common to all ordinary flowers of the species. Figure two represents one of the little-altered flowers of the specimen. It will be noted that there are two stamens which apparently are fertile, four sepals, four short linear petals (one of which has been removed, the more easily to show the bud beneath it), and rudimentary branches that had started to develop where the "glands" should be. The silicle is enlarged, pubescent, and considerably modified internally, with basal branches developing as shown in figure three. That drawing (plate 2, fig. 3) illustrates an opened fruit bearing a small partially developed branch in the axil of each valve. The two ovules are recognizable as such, although the funiculi are freed from the placentae below their normal point of attachment in the silicle. The replum is lacking entirely.

Figure four shows a flower that is more greatly modified. In place of ovules there are leaf-like structures where ovules might normally be. The branches that originate in the axils of the valves are larger and fastigiate in appearance. The flower drawn in figure five is essentially similar to that of figure four, but all trace of the ovules has disappeared. Figure six represents a case in which a main branch has grown from the center of the fruit, one "axillary bud," only, developing. Figure seven shows a flower

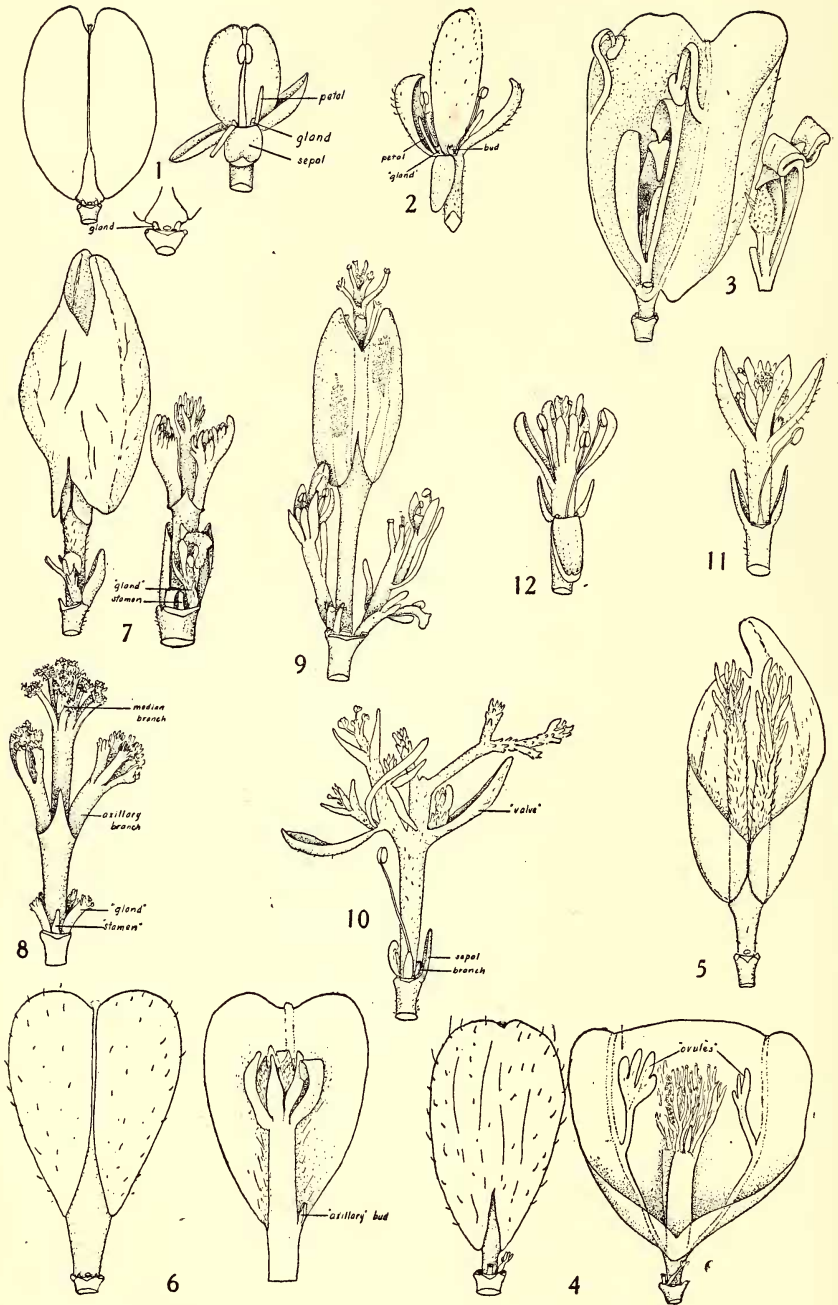


PLATE 2. A TERATOLOGICAL SPECIMEN OF LEPIDIUM.

in which two branches have developed from the region of the "glands." In the ovary itself, three branches have developed, one from the "axil" of each valve, the third median to these two. Figures eight, nine, and ten are illustrations of flowers that are essentially similar to the previous one; in figure nine the branches from the "glands" are more fully developed. Stamens and ovaries have developed in the axils of a few of the bracts on these branches. The flower of figure ten is so modified that one can but compare, by virtue of their position, the subtending basal bracts of the upper branches to the valves of a silicle. Figures eleven and twelve represent a couple of flowers that have produced central branches in the position normal for the fruit. Sepals, petals, and stamens are not greatly altered in appearance.

Although it is realized that general deductions concerning morphological structures cannot safely be drawn from teratological material, these points are of interest at least: 1. Floral branches from below the ovary apparently have arisen in each case from the position considered "normal" for the glands of the flower. 2. In most cases a branch has developed from the "axil" of each valve of the silicle. 3. Judged from the number of branches that develop in the ovary, there is no indication that there are four carpels in the flower.

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## REVIEW

*Foundations of Plant Geography.* By STANLEY A. CAIN. Pp. xiv + 556 and 63 figures. Harper & Brothers, 1944. \$5.00.

This is undoubtedly the most comprehensive and modern book on plant geography written from the historical point of view. Its comprehensiveness is indicated both by its length and the number of titles, 720, in the section on "Literature Cited." Its modernity is evident from the fact that nearly two-thirds of these titles represent works written since 1930. For these reasons alone it is a "must have" for the library of every serious botanist or botanical institution. No where else can one find such a wealth of recent material on this subject carefully and impartially reviewed.

To readers of *Madroño* Dr. Cain's book is of particular significance for two reasons. In the first place, its basic framework is taken from the principles published by our editor, Dr. Mason, in this journal (vol. 3, pp. 181-190). Secondly, both the history of the flora of the western United States and the work of western botanists receive particular emphasis. The figures include no less than eight outline maps of California and the adjacent states, which illustrate the distribution of such familiar and interesting groups as *Sequoia*, *Libocedrus*, *Pinus Jeffreyi*, *Pentstemon* spp., and *Crepis*. An outline map of the Monterey Peninsula, illustrating